REMARKS

I. INTRODUCTION

Applicant thanks the Examiner for the indication that claims 6, 12, 18, 42-44 and 47 are allowable. Further, Applicant thanks the Examiner for the indication that claims 5, 11, 17, 21, 23-41, 45, 46 and 48-53 would be allowable if rewritten in independent form to include all of the limitations of the base claim and intervening claims. In addition, Applicant appreciates the Examiner's participation in a telephone interview with the Applicant's attorney on November 9, 2007.

Claims 5 and 36 have been rewritten in independent form to include the recitations of previously pending claim 4. Claim 11 and 46 have been rewritten in independent form to include the recitations of previously pending claim 10. Claim 17 has been rewritten in independent form to include the recitations of previously pending claim 17. Claims 21, 50 and 51 have been rewritten in independent form to include the recitations of previously pending claim 20. Claims 23, 30 and 39 have been rewritten in independent form to include the recitations of originally-filed claim 1. Claim 45 has been rewritten in independent form to include the recitations of originally-filed claim 7. Claim 48 and 49 have been rewritten in independent form to include the recitations of originally-filed claim 19. It is respectfully asserted that the described amendments to claims 5, 11, 17, 21, 23, 30, 36, 39, 45, 46 and 48-51 have not been made for any reason relating to patentability thereof. Claims 1-3, 7-9, 13-15, 19 and 22 have been canceled, without prejudice. Accordingly, claims 4-6, 10-12, 16-18, 20, 21 and 23-53 are now under consideration in the above-referenced application. Provided above, please find a claim listing indicating the current cancellations and amendments to the

previously-pending claims on separate sheets so as to comply with the requirements set forth in 37 C.F.R. § 1.121. It is respectfully submitted that no new matter has been added.

II. REJECTIONS UNDER 35 U.S.C. §§ 102(b) AND 103(a) SHOULD BE WITHDRAWN

Claims 1-4, 7-10, 13-16 and 22 stand rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by U.S. Patent No. 6,515,479 issued to Arz et al. (the "Arz Patent"). Further, claims 19 and 20 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over U.S. Patent No. 6,515,479 issued to Sepponen (the "Sepponen Patent") in view of the Arz Patent. Applicant respectfully asserted that the Arz Patent does not disclose the subject matter recited in independent claims 4, 10 and 16 of the above-referenced application and the claims which depend therefrom for at least the reasons provided in greater detail herein below. Further, Applicant respectfully submits that the Sepponen Patent, taken alone or in combination with the Arz Patent, does not render the subject matter of claim 20 obvious to one having ordinary skilled in the art.

In order for a claim to be rejected as anticipated under 35 U.S.C. § 102, each and every element as set forth in the claim must be found, either expressly or inherently described, in a single prior art reference. Manual of Patent Examining Procedures, § 2131; *see also Lindman Machinenfabrik v. Am Hoist and Derrick*, 730 F.2d 1452, 1458 (Fed. Cir. 1984).

Under 35 U.S.C. § 103(a), a person is not entitled to a patent even though the invention is not identically disclosed or described as set forth in §102, "if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." 35 U.S.C. § 103(a).

The objective standard for determining obviousness under 35 U.S.C. § 103, as set forth in *Graham v. John Deere, Co.*, 383 U.S. 1 (1966), requires a factual determination to ascertain: (1) the scope and content of the prior art; (2) the level of ordinary skill in the art; and (3) the differences between the claimed subject matter and the prior art. Based on these factual inquiries, it must then be determined, as a matter of law, whether or not the claimed subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the alleged invention was made. *Graham*, 383 U.S. at 17. Courts have held that there must be some suggestion, motivation or teaching of the desirability of making the combination claimed by the applicant (the "TSM test"). *See In re Beattie*, 974 F.2d 1309, 1311-12 (Fed. Cir. 1992). This suggestion or motivation may be derived from the prior art itself, including references or disclosures that are known to be of special interest or importance in the field, or from the nature of the problem to be solved. *Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc.*, 75 F.3d 1568, 1573 (Fed. Cir. 1996).

Although the Supreme Court criticized the Federal Circuit's application of the TSM test, *see KSR International Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741, (2007) the Court also indicated that the TSM test is not inconsistent with the *Graham* analysis

recited in the *Graham v. John Deere* decision. *Id.*; *see In re Translogic Technology, Inc.*, No. 2006-1192, 2007 U.S. App. LEXIS 23969, *21 (October 12, 2007). Further, the Court underscored that "it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does." *KSR*, 127 S. Ct. at 1741. Under the precedent established in *KSR*, however, the presence or absence of a teaching, suggestion, or motivation to make the claimed invention is merely one factor that may be weighed during the obviousness determination. *Id.* Accordingly, the TSM test should be applied from the perspective of a person of ordinary skill in the art and not the patentee, but that person is creative and not an automaton, constrained by a rigid framework. *Id.* at 1742. However, "the reference[s] must be viewed without the benefit of hindsight afforded to the disclosure." *In re Paulsen*, 30 F.3d 1475, 1482 (Fed.Cir. 1994).

The prior art cited in an obviousness determination should create a reasonable expectation, but not an absolute prediction, of success in producing the claimed invention. *In re O'Farrell*, 853 F.2d. 894, 903-04 (Fed. Cir. 1988). Both the suggestion and the expectation of success must be in the prior art, not in applicant's disclosure. *Amgen, Inc. v. Chugai Pharmaceutical Co., Ltd.*, 927 F.2d 1200, 1207 (Fed. Cir. 1991) (citing *In re Dow Chem. Co.*, 837 F.2d 469, 473 (Fed. Cir. 1988)). Further, the implicit and inherent teachings of a prior art reference may be considered under a Section 103 analysis. *See In re Napier*, 55 F.3d 610, 613 (Fed. Cir. 1995).

Secondary considerations such as commercial success, long-felt but unsolved needs, failure of others, and unexpected results, if present, can also be considered. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538-39 (Fed. Cir. 1983).

Although these factors can be considered, they do not control the obviousness conclusion. *Newell Cos. v. Kenney Mfg. Co.*, 864 F.2d 757, 768 (Fed. Cir. 1988).

An exemplary embodiment of Applicant's invention, as recited in amended independent claim 4, relates to a coil arrangement which comprises, *inter alia*:

> a first conductive member arranged along ***a first axis***; and a second conductive member arranged along ***a second axis which is approximately coaxial with the first axis***; **wherein the first conductive member is adapted to allow a first current to flow in a first direction, and the second conductive member is adapted to allow a second current to flow in a second direction which is opposite to the first direction**, and wherein the first and second conductive members form at least one magnetic field gradient coil structure.

With respect to independent claim 10, this claim recites a MRI system comprising a coil arrangement which comprises, *inter alia*:

> a first conductive member arranged along ***a first axis***; and a second conductive member arranged along ***a second axis which is approximately coaxial with the first axis***; **wherein the first conductive member is adapted to allow a first current to flow in a first direction, and the second conductive member is adapted to allow a second current to flow in a second direction which is opposite to the first direction**, and wherein the first and second conductive members form at least one magnetic field gradient coil structure.

Further, another exemplary embodiment of Applicant's invention, as recited in independent claim 16, relates to a method of providing a coil arrangement which comprises, *inter alia*:

> providing a first conductive member arranged along ***a first axis***; and providing a second conductive member arranged along ***a second axis which is approximately coaxial with the first axis***; **wherein the first conductive member is adapted to allow a first current to flow in a first direction, and the second conductive member is adapted to**

> **allow a second current to flow in a second direction which is opposite to the first direction**, and wherein the first and second conductive members form at least one magnetic field gradient coil structure.

Finally, independent claim 20 recites a computer-readable medium for operating a MRI system comprising a coil arrangement comprising a first conductive member arranged along a first axis and a second conductive member arranged along a second axis which is approximately coaxial with the first axis, the computer-readable medium having a set of instructions operable to direct a processor to perform the steps of, *inter alia*:

> **permitting a first current to flow in a first direction in the first conductive member; and permitting a second current to flow in a second direction in the second conductive member, the second direction being opposite to the first direction**, wherein the first and second conductive members form at least one magnetic field gradient coil structure.

The Arz Patent relates generally to gradient coils, with each discrete winding having a separate supply line. (See Arz Patent, Abstract). Specifically, the Arz Patent describes fashioning a coil with separate supply lines for each individual winding such that the individual lines form a conductor bundle. (See *id.*, col. 3, lns. 42-47; Fig. 2).

The Sepponen Patent relates generally to NMR imaging devices containing sets of gradient coils, a signal coil, amplifiers, filters, data processors and display equipment. (See Sepponen Patent, Abstract). Although the Sepponen Patent describes using a set of gradient coils, at no point does it describe gradient coils in detail.

In clear contrast to the Applicant's claimed invention, the Sepponen Patent and the Arz Patent do not disclose a coil arrangement in which, *inter alia*, a first conductive member is arranged along ***a first axis***; and a second conductive member is arranged along ***a second axis which is approximately coaxial with the first axis***, where **the first conductive member is adapted to allow a first current to flow in a first direction, and the second conductive member is adapted to allow a second current to flow in a second direction which is *opposite to the first direction***, as explicitly recited in independent claims 4, 10 and 16 of the above referenced application. Similarly, the Sepponen Patent and the Arz Patent do not teach, suggest or disclose a computer-readable medium having a set of instructions operable to direct a processor to perform the steps of, *inter alia*, **permitting a first current to flow in a first direction in the first conductive member; and permitting a second current to flow in a second direction in the second conductive member, the second direction being *opposite to the first direction***, where a first conductive member is arranged along ***a first axis***; and a second conductive member is arranged along ***a second axis which is approximately coaxial with the first axis***, as explicitly recited in independent claim 20 of the above referenced application.

Indeed, the Arz Patent describes a coil arrangement that contains various windings with separate supply lines. (See Arz Patent, col. 3, lns. 42-47, Fig. 2). However, the Arz Patent does not describe any coil arrangement in which **the first conductive member is adapted to allow a first current to flow in a first direction, and the second conductive member is adapted to allow a second current to flow in a second direction which is opposite to the first direction**. Although the

individual supply lines of the Arz Patent may allow current to pass in two different directions, the axes of the individual supply lines are not ***approximately coaxial***, as recited in independent claims 4, 10, 16 and 20 of the present application. Further, the individual windings of the Arz Patent are not adapted to carry current in two different directions as recited in these independent claims. As the Examiner agreed in a telephone conference with Applicant's attorney on November 9, 2007, the coil described in Fig. 2 of the Arz Patent does not have windings which are adapted to carry current in two different directions.

Therefore, the Arz Patent does not disclose a coil arrangement in which a first conductive member is arranged along ***a first axis***; and a second conductive member arranged along ***a second axis which is approximately coaxial with the first axis***, where **the first conductive member is adapted or permitted to allow a first current to flow in a first direction, and the second conductive member is adapted or permitted to allow a second current to flow in a second direction which is opposite to the first direction**, as recited in independent claims 4, 10, 16 and 20.

Accordingly, it is respectfully asserted that the Arz Patent does not disclose the subject matter recited in independent claims 4, 10, and 16. Further, it is respectfully asserted that the alleged combination of the Sepponen Patent and the Arz Patent fails to teach or suggest the subject matter of independent claim 20, thereby rendering the subject matter of claim 20 obvious to one having ordinary skilled in the art. Therefore, for at least the reasons set forth herein above, Applicant respectfully asserts

that the rejections of claims 4, 10 and 16 under 35 U.S.C. § 102(b) and the rejection of claim 20 under 35 U.S.C. § 103(a) should be withdrawn.

III. ALLOWABLE SUBJECT MATTER

Applicant thanks the Examiner for the confirmation that claims 6, 12, 18, 42-44 and 47 are allowable. Further, Applicant thanks Examiner for the confirmation that claims 5, 11, 17, 21, 23-41, 45, 46 and 48-53 are objected to as being dependent on a rejected base claim, but would be allowed if rewritten in independent form to include all of the limitations of the base claim and any intervening claims.

As the Examiner shall ascertain, claims 5, 11, 17, 21, 23, 30, 36, 39, 45, 46 and 48-51 have been rewritten in independent form. Accordingly, Applicant respectfully requests that the allowability of claims 5, 6, 11, 12, 17, 18, 21 and 23-53 be confirmed in a subsequent communication.

IV. CONCLUSION

In light of the foregoing, Applicant respectfully submits that pending claims 4-6, 10-12, 16-18, 20, 21 and 23-53 are in condition for allowance. Prompt consideration, reconsideration and allowance of the present application are therefore earnestly solicited. If any issues remain outstanding, the Examiner is invited to contact the undersigned via the telephone number provided below.

Respectfully submitted,

Date: November 21, 2007 By: _____

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